IN THE SPECIFICATION:

Please replace the following paragraphs in the Specification.

[129] For some designs, adaptive canceller 220 may be omitted and noise suppression is achieved using only noise suppression unit 240. For some other designs, voice activity detector 230 may be omitted.~~,~~

[136] ~~[134]~~ The NLMS and other algorithms are described in detail by B. Widrow and S.D. Sterns in a book entitled "Adaptive Signal Processing," Prentice-Hall Inc., Englewood Cliffs, N.J., 1986. The LMS, NLMS, RLS, DMI, and other adaptation algorithms are described in further detail by Simon Haykin in a book entitled "Adaptive Filter Theory", 3rd edition, Prentice Hall, 1996. The pertinent sections of these books are incorporated herein by reference.

[158] Noise spectrum estimator 642a receives the magnitude of the transformed signal $S(\omega)$, the magnitude of the transformed signal $X(\omega)$, and the Act control signal from voice activity detector 230 indicative of periods of non-speech activity. Noise spectrum estimator 642a then derives the magnitude spectrum estimates for the noise $N(\omega)$, as follows:

$$|N(\omega)| = W(\omega) \cdot |X(\omega)| \;, \qquad \text{Eq (1)}$$

where $W(\omega)$ is referred to as the channel equalization coefficient. In an embodiment, this coefficient may be derived based on an exponential average of the ratio of magnitude of $S(\omega)$ to the magnitude of $X(\omega)$, as follows:

$$W_{n+1}(\omega) = \alpha\, W_n(\omega) + (1-\alpha)\frac{|S(\omega)|}{|X(\omega)|} \;, \qquad \text{Eq (2)}$$

where α is the time constant for the exponential averaging and is $0 < \alpha \leq 1$. In a specific implementation, $\alpha = 1$ when voice activity indicator 230 indicates ~~that~~ a speech activity

period and $\alpha = 0.1$ when voice activity indicator 230 indicates a non-speech activity period.

[160] With the magnitude spectrum of the noise $|N(\omega)|$ and the magnitude spectrum of the signal $|S(\omega)|$ available, a number of spectrum modification techniques may be used to determine the gain coefficients $G_1(\omega)$. Such spectrum modification techniques include a spectrum subtraction technique, ~~Weiner~~ Wiener filtering, and so on.

[165] Gain calculation unit 644b ~~642b~~ then derives a second set of gain coefficients $G_2(\omega)$ by first computing the SNR of the speech component in the signal $S(\omega)$ and the noise component in the signal $S(\omega)$, as shown in equation (6). Gain calculation unit 644b ~~642b~~ then determines the gain coefficients $G_2(\omega)$ based on the computed SNRs, as shown in equation (6) ~~(7)~~.

[167] Noise floor estimator 642b and gain calculation unit 644b ~~642b~~ may also be designed to implement a two-channel spectrum modification technique using the speech plus noise signal $s(t)$ and another mostly noise signal that may be derived by another sensor/microphone or a microphone array. The use of a microphone array to derive the signals $s(t)$ and $x(t)$ is described in detail in copending U.S. Patent Application Serial No. 10/076,201 ~~[Attorney Docket No. 122-1.1]~~, entitled "Noise Suppression for a Wireless Communication Device," filed February 12, 2002, assigned to the assignee of the present application and incorporated herein by reference.

[170] In the embodiment shown in FIG. 6, multiplier 646a, 646b, and 646c are arranged in a serial configuration. This represents ~~is~~ one way of combining the multiple gains computed by different noise suppression units. Other ways of combining multiple gains are also possible, and this is within the scope of this application. For example, the total gain for each frequency bin may be selected as the minimum of all gain coefficients for that frequency bin.

[172] The embodiment shown in FIG. 6 employ three different noise suppression mechanisms to provide improved performance. For other embodiments, one or more of

these noise suppression mechanisms may be omitted. For example, a noise suppression unit 240 ~~230~~ may be designed without the single-channel spectrum modification technique implemented by noise floor estimator 642b, gain calculation unit 644b, and multiplier 646b. As another example, a noise suppression unit 230 may be designed without the noise suppression by residual noise suppressor 642c and multiplier 646c.

[176] The main beam former combines the detected signals from all or a subset of the signal detectors to provide the speech plus noise signal s(t). The main beam former may be implemented with various designs. One such design is described in detail in the aforementioned ~~copending~~ U.S. Patent Application Serial No. 10/076,201 ~~[Attorney Docket No. 122-1.1], entitled "Noise Suppression for a Wireless Communication Device," filed February 12, 2002, assigned to the assignee of the present application and incorporated herein by reference~~.

[177] The blocking beam former combines the detected signals from all or a subset of the signal detectors to provide the mostly noise signal x(t). The blocking beam former may also be implemented with various designs. One such design is described in detail in the aforementioned U.S. Patent Application Serial No. 10/076,201 ~~[Attorney Docket No. 122-1.1]~~.